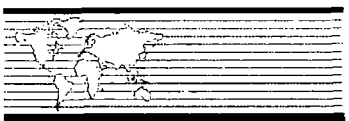

HEALTH AND SAFETY PLAN TO SUPPORT SAMPLING AND ANALYSIS ACTIVITIES AT LIBBY ASBESTOS SUPERFUND SITE, OPERABLE UNIT 3 (OU3) REV 0

Submitted To: Remedium Group Inc.
6401 Poplar Avenue, Suite 301
Memphis, TN 38119

Submitted By: Golder Associates Inc.
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052 USA

December 7, 2010

Project No. 103-93351

A world of capabilities delivered locally

Golder Associates

This Site-Specific Health and Safety Plan is a supplement to Golder's Health and Safety Orientation Manual and Injury and Illness Prevention Program.

Project Name: **WR Grace/Asbsts Superfund Site/WA** ***Project #:*** **103-93351**

Location of Project: Libby Montana ***Date:*** **December 2010**

Golder Subcontractor on Project? ☐ **Yes** ☐ **No**

Project Start Date: **September 2010** ***Expected Project Duration:*** **2012**

Health & Safety Coordinator	**Amanda Cote**		**12/10/10**
		Signature	***Date***
Project Manager:	**Sue Robinson**		**12/10/10**
		Signature	***Date***
Project Director:	**Doug Dunster**		**12/10/10**
		Signature	***Date***

These signatures indicate that the above Project Manager and Project Director are aware of the potential hazards at this site, have reviewed this Plan, and will communicate these hazards and appropriate controls to Golder staff prior to their deployment on site.

There are three major categories of emergencies that could occur during any project:

- Illness and/or physical injury;
- Catastrophic event (fire, explosion, earthquake, chemical, or radioactive); and
- Safety equipment failure.

Although a catastrophic event, severe medical emergency, or safety equipment failure are unlikely to occur during work activity at the Site, an emergency action plan is outlined below.

EMERGENCY ACTION PLAN
Emergency Contact & Services

Title	*Name*	*Contact #'s*
Site Safety Officer	Jeremy Clark	802-578-6511
First Aid/CPR	Jeremy Clark Sue Robinson	802-578-6511 425-894-2145
Project Manager	Sue Robinson	425-216-0822
Office H&S Coordinator	Amanda Cote	425-417-2218
Client Contact	Robert Marriam	901-820-2023

Title	*Name*	*Contact #'s*
Hospital	St.Johns Lutheran	406-293-0100
Fire Dept.		911
Ambulance		911
Golder National H&S Leader	Jane Mills	206-295-7002 cell
Injury Intervention Support	WorkCare	888-449-7787

Catastrophic Event or other Emergencies Requiring Evacuation:

In the event of a catastrophic event such as fire or explosion, if the situation can be readily controlled with available resources without jeopardizing your health and safety or the health and safety of others, take immediate action to do so, otherwise follow these steps:

1. Notify Emergency Personnel by calling: 911
2. Isolate the fire to prevent spread
3. Evacuate the area.
4. Assemble at the Muster Station: On-site Decon Station
5. Perform head count to ensure complete evacuation.
6. Inform Emergency Personnel of any missing team members.
7. In the event of an international security emergency, contact Medex at 800-527-0218 (US and Canada) or 410-453-6330 (collect outside of the US).

First Aid Resources

Method of communication	Radio: Grace-assigned personnel (to Golder) carry radios
Channel or phone number	Radio channel TBD. Grace-assigned personnel (to Golder) carry radios.
Location of First Aid at the project site	On-site Decontamination Station; small kits in each ranger vehicle.
Location of nearest telephone if outside assistance is required	Guard Station at Mine Site entrance

Medical Emergencies

Medical emergencies can be described as situations that present a significant threat to the health of individual personnel. These can result from a variety of hazardous incidents including chemical and radioactive exposures, heat stress, cold stress, poisonous insect or snakebites, and accidents involving vehicles or heavy equipment. In the event of a medical emergency, implement the following guidelines:

1. Assure that the environment is safe;
2. Administer appropriate emergency first aid to all injured individuals, only if it is safe to do so, and only by a qualified individual trained in first aid;
3. Notify emergency personnel and follow their instructions;
4. If emergency personnel cannot be contacted, severely injured personnel shall be transported to the designated hospital/ trauma center identified on the following page.
5. Contact WorkCare at the earliest possible time to report the work-related injury. **888-449-7787**
6. If the project location is outside of the United States and medical assistance is necessary, contact the HTH Assistance Center at **1-888-243-2358** or collect **1-610-254-8769**.

NEAREST HOSPITAL INFORMATION AND DIRECTIONS
Information about the nearest hospital and emergency routes is contained in Section 6.0 of this document.

PRE – DEPARTURE

IMPORTANT THINGS TO CHECK & REMEMBER

1. Ensure that the Project Manager, Health and Safety Coordinator, and Project Director have approved this HASP.
2. Ensure that your Project Manager, Site Safety Officer or Health and Safety Coordinator has discussed the contents of the HASP in detail, gone through the Hazard Assessment with you and explained the hazards associated with the work that you will be performing.
3. Ensure that you have all the required PPE and are trained in the areas which are indicated in this HASP.
4. Familiarize yourself with the Emergency Action Plan for the site prior to site arrival.
5. Check the weather in the immediate area of the project site to ensure that the current weather conditions do not create additional hazards that have not been evaluated.
6. Inquire about cell phone coverage (satellite communications may be the ONLY option in some locations) and physically test all of your means of communication to ensure that they function, and you are familiar with the controls.
7. If you are going to a site where activities are in progress, do not begin work until you have been given an orientation from the Site Safety Officer and have reviewed any existing Site Health & Safety Manual.
8. Review subcontractor's site-specific HASP, as applicable.
9. **You have the right to refuse any work that you feel is unsafe, or that you are not trained to do. Please discuss your concerns immediately with the Project Manager, Site Safety Officer and Health and Safety Coordinator.**

FIELDWORK HEALTH & SAFETY PLAN

Project Personnel

Team Member	Function	Cell Ph. #	Other Ph. #	Allergies	Emergency Contact		Init.*
					Name	Phone #	
Sue Robinson	Project Manager	425-894-2145	425 216-0822	None	Rex Robinson	425-466-2584	
Jeremy Clark	Field Team, Site Safety Officer	802-578-6511	425 883-0777	Poison Ivy	Jonna Clark	206-578-6512 (pager)	
Other Personnel TBD on a Task-specific basis							

***All Golder Project Personnel must initial in this column beside their name to indicate that they have read & understood the project Health & Safety Plan**

Special Instructions

1.	Determine additional H&S requirements from Site Personnel prior to starting work.
2.	
3.	
4.	
5.	

Project-Specific Check-in Procedure

If you are in the field alone, or if you are the only Golder person on-site, you must check in with the PM or a designee a minimum of twice each day, preferably once in the mid-morning and once in the mid -afternoon. Document check-in times below and add any relevant notes.

☐ A.M. Time: TBD for each identified field activity Notes: Enter information related to daily check-in here. For example, the PM should start the contacting/search process if the field person did not check in after an agreed amount of time.

☐ P.M. Time: TBD for each identified field activity Notes: Field personnel need to maintain a record of their calls to their PM in their field notebook.

If check-in does not occur at the pre-scheduled time, the PM will follow these steps:

1. Call field personnel cell phone or satellite phone to make contact.
2. Call cell phone or satellite phone of other colleagues on the project site.
3. Call client contact if present on site.
4. Call field personnel hotel or home telephone number.
5. Call emergency search services.

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ACRONYMS AND ABBREVIATIONS

CPR	Cardiopulmonary resuscitation
EPA	U.S. Environmental Protection Agency
H&S Officer	Health and Safety Officer
HASP	Health and Safety Plan
HEPA	High-efficiency particulate air
HPS	Hantavirus Pulmonary Syndrome
OUs	Operable Units
PAPRs	Powered Air Purifying Respirators
PPE	Personal protective equipment
Remedium	Remedium Group, Inc.
SAP	Sampling and Analysis Plan

1.0 INTRODUCTION

The Libby Asbestos Superfund Site Operable Unit 3 (site) is located approximately 7 miles northeast of the town of Libby, in Lincoln County in northwest Montana. The site comprises the vermiculite mine on Zonolite Mountain, the former screening plant and former export plant (two former vermiculite processing centers), Rainy Creek Road, the surrounding forested area, and homes and businesses which could have become contaminated with Libby asbestos fibers as a result of the mining and processing operations in and around Libby. Investigative activities are being conducted at the site. Only Operable Unit 3 (OU3) sampling activities covered in the Sampling and Analysis Plan (SAP) (EPA 2008) are covered by the procedures addressed in this Health and Safety Plan (HASP). Accordingly, this HASP addresses the health and safety concerns and precautions for Golder employees collecting biotic (i.e., fish, aquatic invertebrates, birds, and small mammals) and abiotic (i.e., sediment, water) samples in OU3. Additional biotic sampling may occur in 2011.

1.1 Location of Site

Site:	Libby Asbestos Superfund Site Operable Unit 3
Location:	7 miles northeast of Libby, Montana
County:	Lincoln County, Montana

Figure 1 shows the location of the Libby Montana Superfund Site OU3 relative to the town of Libby, Montana.

1.2 Scope of the HASP

Activities covered by this HASP include the collection of both biotic and abiotic samples. Fish and aquatic invertebrates will be collected for counts and identification, while mammals (and possibly birds) will be collected for tissue necropsy and possible population analysis. Tissue necropsy will be performed to evaluate any gross abnormalities and to collect tissue samples for subsequent histopathological evaluation (the histopathological evaluation is outside the scope of this HASP). Sediment will be collected for use in aquatic bioassays and for chemical analysis, while any water collected will be for chemical analysis.

This HASP covers only those health and safety concerns associated with the collection of biotic and abiotic samples from Libby Asbestos Superfund Site OU3, as well as those associated with performing necropsies by employees of Golder Associates Inc. (Golder). It does not address any other activities conducted by Golder or other subcontractors. If required, an addendum to this HASP will be prepared to cover additional site sampling activities.

1.3 Applicability and Regulatory Guidance

This HASP applies only to authorized employees of Golder involved directly in the environmental sampling activities at the Libby Asbestos Superfund Site, as well as those associated with

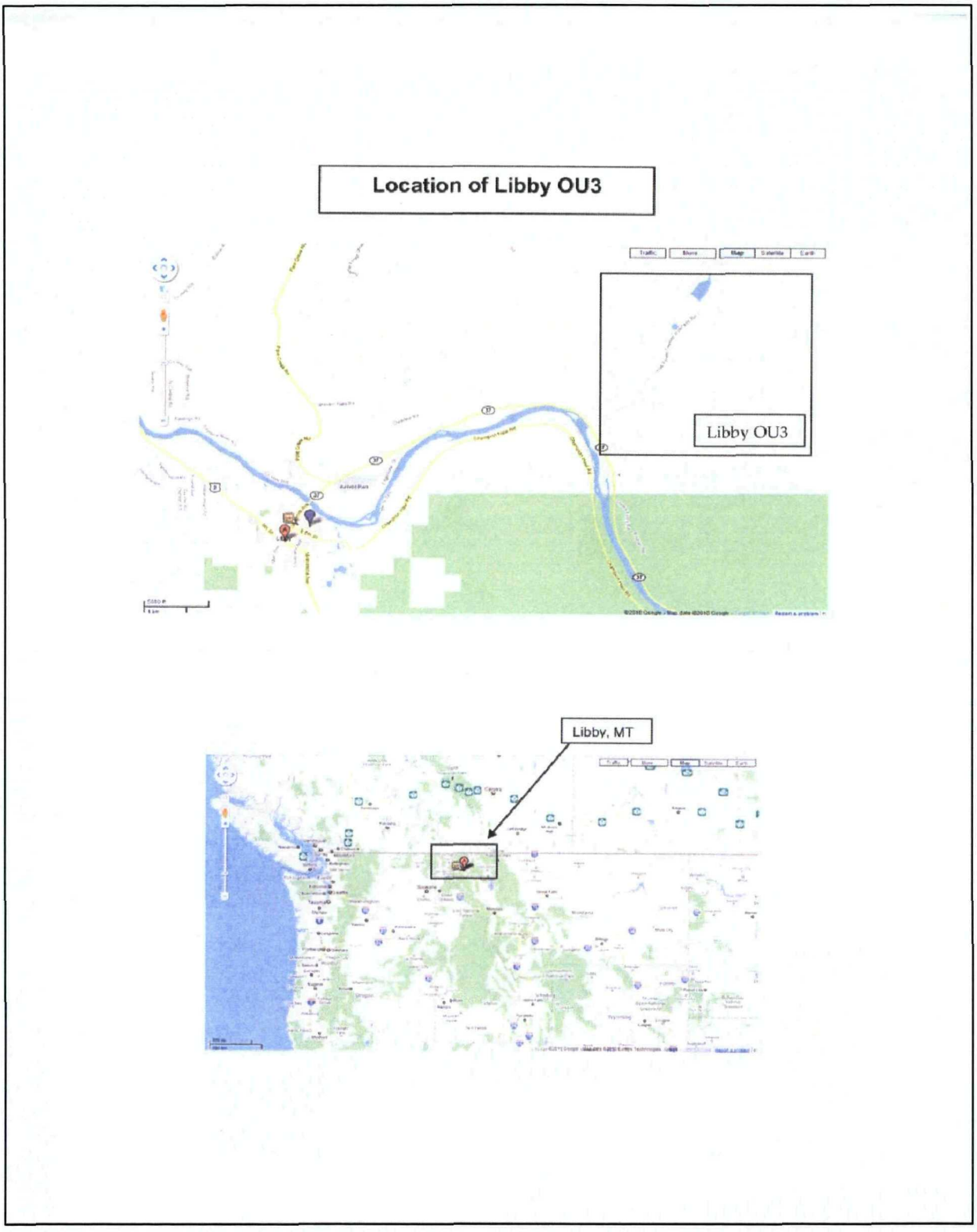


Figure 1. Site Location Map

performing the necropsies. This HASP is designed to protect Golder field staff engaged in these field activities by complying with the following regulations and guidelines:

- Federal regulations *(OSHA, 29 CFR Part 1910.120[b][1][iv] and [v])* require that the employer provide relevant health and safety information including, but not limited to, this HASP to contractors, subcontractors, or their representatives, as well as OSHA and U.S. EPA.

Any party other than Golder remains responsible for providing its own site-specific HASP that addresses its own site-specific activities, which may differ from those addressed in this HASP for Golder field staff. Hence, Golder, assumes no responsibility or liability for the use or misuse of its HASP by such other party, its employees, agents, or subcontractors. Such other party must develop and implement its own HASP, and further ensure that the provisions and implementation of its HASP will smoothly interface with other plans in effect at the site.

2.0 KEY GOLDER PERSONNEL

2.1 Health and Safety Personnel

National Health and Safety Leader:	Jane Mills	Phone: (206) 295-7002
Office Health and Safety Coordinator	Amanda Cote	Phone: (425) 417-2218
Golder Site Safety Officer	Jeremy Clark	Phone: (802) 578-6511
First Aid/CPR	Jeremy Clark Sue Robinson	(802) 578-6511 (425) 894-2145
Project Manager	Sue Robinson	(425) 894-2145

2.2 Project Personnel

Team Member	Function	Cell Ph. #	Allergies	Emergency Contact	Initial*
Sue Robinson	Project Manager Field Team	(425) 458-6205	None	Rex Robinson (Spouse) (425) 466-2584 (mobile)	
Jeremy Clark	Golder Safety Officer Field Team	(802) 578-6511	Poison Ivy	Jonna Clark (Spouse) (206) 578-6512 (pager) (206) 542-6198 (home)	

2.3 Client Contact

Remedium Group, Inc.	Robert Marriam	Phone: (901) 820-2023

3.0 HEALTH AND SAFETY TRAINING FOR SITE INVESTIGATIONS

All Golder sampling personnel will have received health and safety training commensurate with the activities to be performed:

- The Golder sampling team will have a minimum of 40 hours of initial training and, as needed, eight hours of annual refresher training (training curriculum used to meet the training requirements of 29 CFR 1910.120(e)); or acceptable equivalent. They will also be familiar with asbestos hazards and controls and shall have had asbestos awareness training either as part of the 40 Hour, a Refresher, or as standalone training.
- On-site[1] management and supervisors (directly responsible for or who supervise employees) have completed at least eight (8) hours of additional specialized training.
- Field team members will have current medical clearance to undertake hazardous waste activities and to wear respiratory protection per 29 CFR 1910.120(f).
- At least one field team member is currently certified in first aid and cardiopulmonary resuscitation (CPR) through the American Red Cross or an equivalent program.
- If boats or small watercraft are required during the course of collecting samples, training in boating and water safety will be required for boat operators.
- In addition, all field team members will be required to read and understand this HASP and attend a field team meeting prior to embarking on the field work. This meeting will be conducted by the Golder Site Safety Officer.

4.0 HAZARD ANALYSIS

This hazard analysis includes the tasks to be performed, the potential hazards, and the protective measures to be taken. The items listed in this HASP include only those to be encountered while collecting abiotic and biotic samples at Libby Asbestos Superfund Site OU3. Golder personnel will also receive any on-site health and safety orientation that may be required by the Remedium Group, Inc. (Remedium).

The information in this hazard analysis has been compiled based on the expected hazards of the work to be performed, and in consideration of the SAP (EPA 2008) for the project. Changes to procedures or encounters of unexpected hazards will require reconsideration of this HASP. Such

[1] On-site activities are all activities conducted within the Libby Asbestos Superfund Site OU3.

changes require the approval of the Golder Health and Safety Manager, Golder Project Manager, and the Golder Project Director.

Personal protective equipment (PPE), such as gloves, safety glasses, protective clothing, and respirators are used to shield or isolate individuals from the chemical, physical, and biological hazards that may be encountered during the collection of biological samples. The use of adequate PPE will protect the respiratory system, the skin, eyes, and hands.

The types of PPE that may be required will vary depending on the degree and type of contamination of the material, as well as the methods to remove, transport, and dispose of the material. PPE will be selected and used to meet the requirements of 29 CFR Part 1910, Subpart I.

4.1 Pathways for Hazardous Substances Exposure

Hazardous substances (especially asbestos in soils, water, and mine tailings) found at Libby Asbestos Superfund Site OU3 may result in exposure to humans by various pathways, including:

- Potential splash from surface water during sample collection or sample processing.
- Potential skin contact with contaminated water, soil, or sediment during sample collection.
- Potential lacerations from cutting instruments used during sample collection or necropsy may provide route of exposure to blood borne pathogens.
- Potential bites from insects, snakes, small mammals, or birds during sample collection.
- Inhalation of asbestos or other contaminants from air or dust (respirators are required on OU3 to mitigate this pathway).
- Potential electric shock during fish sample collection.

4.2 Personal Protective Equipment

At a minimum, PPE necessary includes the following:

- At OU3 protective clothing (i.e., Level C PPE, including hooded Tyvek® coveralls [two layers] and full-face Powered Air Purifying Respirators [PAPRs] with high-efficiency particulate air [HEPA] P100 filter cartridges) shall be worn at all times. The hood shall be worn at all times when in the field or potentially exposed to asbestos fibers.
- Tyvek® covers will also be used (one layer) in the field laboratory (necropsy).
- Rubber gloves and neoprene chest waders (or neoprene hip waders), required for fish collection (electroshock risk) are recommended when collecting aquatic invertebrates and sediment.
- Chemical-protective nitrile gloves (inner and outer pair).
- Heavy-duty (Kevlar®-reinforced) gloves when handling live mammals.

- Goggles or safety glasses will be worn if there is any possibility of splashing liquids into the eyes or to prevent flying particles or other foreign materials from getting into the eyes (e.g., offsite field laboratory).
- Chemical-protective boot covers or boots that also provide adequate footing while hiking along the water bodies chosen for sampling. In some instances, it may be more critical that the boots flex well and have soles to prevent slipping in the woods than be chemical-protective.
- U.S. Coast Guard-approved life jackets, personal floatation devices, or life rings, if boats are used in sample collection.
- Protective gloves and respirator while performing necropsies of fish, mammals or birds off-site.
- Respiratory protection (P-100 cartridges) for reference site work (small mammals) to protect against hantavirus exposures.
- Respiratory protection (multi-contaminant + P-100) for offsite field necropsy laboratory use to protect against (i) formalin vapors (ii) hantavirus, and (iii) incidental asbestos fiber exposure from mammal fur.

4.3 Chemical Hazards

The primary constituent of concern associated with the sampling to be performed at Libby Asbestos Superfund Site OU3 is asbestos (i.e., airborne tremolite [Libby amphibole]).

Air samples collected previously at OU3 have not had measured fiber concentrations approaching allowable limits when analyzed by TEM (transmission electron microscopy).

4.4 Physical Hazards

Potential physical hazards encountered at the site may include the following:

- Slipping, tripping, or falling. (See note above regarding footwear and Standard Work Procedure (SWP) Slips, Trips, and Falls)
- Exposure to vehicle traffic on-site. (SWP Traffic Safety)
- Back injuries. Injuries may occur from lifting heavy objects such as sample containers.
- Cuts or abrasions. These may occur from use of sampling equipment or cutting instruments. (SWP Bloodborne Pathogens)
- Heat stress and dehydration. Field sampling personnel should drink sufficient water throughout the day and should monitor themselves for heat stress as described in Figure 2 of this HASP. Symptoms of heat stress include irritation, dizziness, nausea or vomiting, rapid pulse, muscle cramps, and weakness. Heat stress can be avoided by wearing loose-fitting, light-colored clothing, and a hat or cap, as well as staying hydrated. (SWP Heat Stress)
- Sunburn. Field sampling personnel should wear hats and sunscreen to prevent sunburn when working outdoors. (SWP Heat Stress)
- Inclement weather. Field sample personnel should wear proper attire, including a hat and gloves, to prevent hypothermia. (SWP Cold Stress)

HEAT EXPOSURE

Workers engaged in strenuous activity are susceptible to illness due to heat exposure, especially in hot geographic areas and, in any area, at warmer times of the year. Illnesses due to heat are frequently seen in industries using furnaces or heat processes.

Illness due to overexposure to heat, especially at a time of physical stress, occurs most often during the early part of a hot spell or in people who overexert themselves without adequate conditioning.

When one exercises, heat is created in the body. The body automatically reacts to get rid of this heat through the sweating mechanism. When a person perspires, salt and water go from the sweat glands up to the skin surface; the water evaporates from the skin surface and cools the body.

The three separate illnesses caused by heat exposure are:

- Heat cramps
- Heat exhaustion
- Heat stroke (sunstroke)

Heat Cramps

Painful muscle spasms of the arms and legs (heat cramps) following strenuous exercise are occasionally seen in people who otherwise seem to be in good physical condition. Very hot weather or prolonged exposure to the sun is not always necessary for heat cramps to occur. Industrial workers experience them more often than athletes.

TREATMENT—Generally speaking, people with heat cramps need more salt. Heat cramps will usually stop when the patient is given a solution of salt and water made by mixing one teaspoon of table salt to a quart of water or other appropriate replacement fluid, such as Gatorade. If there is any indication of anything more serious, transport the patient immediately to a medical facility. Do not attempt further diagnosis.

Heat Exhaustion

Heat exhaustion (heat prostration or heat collapse) is the most common of the illnesses caused by heat. Weakness, dizziness, headache, nausea, loss of appetite, and faintness may all be a part of heat exhaustion. The patient will appear ashen gray, his skin will be cold and clammy, and the pupils of his eyes may be dilated. It may be difficult to diagnose heat exhaustion. The vital signs may be normal; body temperature may even be normal.

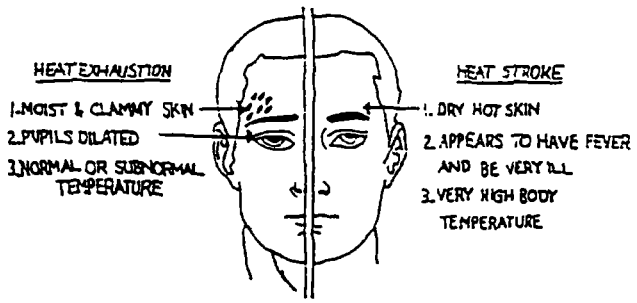
TREATMENT—Care for the patient as if he or she were in shock and transport him to a medical facility. He should rest in a cool or air-conditioned area. Salt and water may aid in recovery, but the condition is not primarily caused by lack of salt or water.

Heat Stroke (Sunstroke)

Sunstroke (more accurately heat stroke, since it is not necessary to be exposed to the sun) is a less common, but far more serious illness. People who experience heat stroke are frequently those in a very warm and humid environment. The most important signs in the patient are an exceedingly high temperature and a very hot, dry skin; even the armpits will be dry.

Compare these symptoms with those of heat exhaustion (see sketch). The patient has a breakdown in his sweating mechanism and is unable to lose excessive body heat built up while he was exercising. As heat builds up in the patient's body, his temperature rises. If body temperature rises too high, delicate brain cells may be injured.

TREATMENT—Heat stroke is a true emergency. The victim may die if proper treatment is not provided. Emergency care for heat stroke is designed to rid the body of extra heat. Try to cool the body immediately. Wet, cold towels applied to the whole body and air from a fan will help while the patient is being transported to the hospital. In the hospital, an ice-water bath or other treatment will probably be used. Remember that the patient with heat stroke may die unless you actively work at lowering his body temperature.



Above sketch points out the main differences between heat exhaustion and heat stroke.

Prevention

It is possible to minimize the adverse effects of hot environments by allowing workers time to acclimatize to them—a process of physiological adaptation, characterized by an increased sweat output and a lowering of the pulse rate and deep body temperature in response to the thermal stress.

Acclimatization (or adequate conditioning) to a particular environment develops quickly, being almost completed in 10 days. But, it is also lost quickly—two to three days without heat exposure leading to a marked loss of tolerance. Any layoff due to holidays or illness should, therefore, be followed by a period during which the worker is allowed to reacclimatize, and, on moving to an even hotter job, a period must be allowed for further acclimatization.

Dehydration leads to a reduction in the sweat rate and an elevation in pulse rate and body temperature. Workers should be encouraged to replace water loss by providing a supply of cool drinking water in the actual working areas. Drinking little and often—four to seven ounces every 15 to 20 minutes—appears to be the best way of maintaining fluids, and workers should be encouraged to drink in this way.

It is always a possibility that heat casualties will occur when the temperature above 77°F. The factors which contribute bringing on heat illnesses are clothing (particularly if it does not permit the passage of fluids), high work loads, and rigid routine or discipline which prevents individual workers from pacing themselves with rest breaks and fluid replacement. There is also some evidence that other environmental factors, such as carbon monoxide, may reduce heat tolerance.

The most stressful tasks should be performed during the cooler part of the day (early morning) or at night. Double-shifts and overtime, whenever possible, should be avoided. Rest periods should be extended in accordance with the increased heat load. One way to maintain production during heat spells is to increase the work force temporarily.

At present, there is no mandatory OSHA heat stress standard in force. Studies performed by NIOSH, however, have shown that fatal heat casualties occur if prevention measures are not observed thoroughly during heat spells.

References

1. American Academy of Orthopedic Surgeons (1971). *Emergency Care and Transportation of the Sick and Injur* George Banta Co., Inc., Menasha, Wisconsin. Pp. 148-149.
2. Schilling, R.S.F. (1975). *Occupational Health Practice.* Butterworths: London & Boston. Pp. 333-334.

Reprinted from Safety & Health Update / Spring, 1984

- Electric shock. While electroshocking for fish, rubber gloves and neoprene chest waders (or neoprene hip waders) will be worn. (SWP Working on or over water)
- Airborne contaminants. Particulates may be transported through the air and be deposited downwind of the source. PAPRs will be worn when collecting samples in both mine and off-mine locations to prevent inhalation of airborne tremolite (Libby amphibole) asbestos fibers. (SWPs Respiratory Protection and Asbestos Awareness Program)
- Inhalation and skin issues related to formalin. A 10 percent neutral, buffered formalin solution will be used to preserve tissue samples for histopathological evaluation. To prevent inhalation of formalin, respiratory protection will be worn as outlined in Section 4.2. Formalin is a potent skin sensitizer and skin irritant, so personnel potentially handling formalin or specimens preserved in formalin shall wear nitrile or other gloves designed to withstand formalin. (SWP Chemical Exposure)
- Biological hazards (more detail in Section 4.5). Heavy-duty gloves (Kevlar®-reinforced) will be worn on-site while collecting mammals or birds to prevent bites by potentially infected animals. Appropriate respirators (i.e., PAPR with N-100 cartridges or equivalent half-face respirators) will be worn off-site when performing necropsies to prevent inhalation of the hantavirus or avian influenza. Gloves will also be worn when performing necropsies to prevent skin absorption of the hantavirus and formalin. (SWP Biological Exposure Risks)

4.5 Biological Hazards

Potential biological hazards encountered at the site may include the following:

- **Venomous Snakes.** Montana has only one species of venomous snake, the prairie rattlesnake (*Crotalus viridis*). Personnel shall avoid putting hands into spaces that are not completely visible and shall watch where they are walking.
- **Mosquitoes.** Field team members are required to take a sufficient supply of suitable mosquito repellant to use in minimizing mosquito bites. *Anopheles* species are widely distributed in the United States. This mosquito can transmit malaria. *Culex* species, the chief vector of West Nile Virus, are also widely distributed in the United States (including Montana).
- **Biting flies.** Biting flies generally pose no serious health threats, but may draw blood.
- **Pests.** Ticks, fleas, and other pests are known to inhabit different areas. Field sampling personnel should take precautions to minimize infestations, as pests can harbor diseases such as Lyme disease and Colorado Tick Fever virus. Although the potential risk to humans is small, wild rodent plague exists in this area. The causative agent of the plague is a bacterium, *Yersinia pestis*. Humans may be infected by the bite of rodent fleas.
- **Parasites.** *Giardia lamblia* is a parasite found in every region of the United States. Symptoms include diarrhea, loose or watery stool, stomach cramps, and upset stomach. These symptoms may lead to weight loss and dehydration. The potential risk to field samplers at the project site is small. Field sampling personnel should avoid ingestion of water from rivers and creeks.
- **Birds.** Birds are potential carriers of avian influenza. Although the risk to field personnel is minimal since the virus does not transmit easily to humans, common sense precautions will be used when processing or handling birds. Sampling personnel will wear protective gloves, eye protection, and an approved respirator

when handling birds, if not in Level C PPE (e.g., while performing necropsies off-site).

- **Small Mammals.** These organisms are potential carriers of hantavirus; exposure may occur through contact with the animals, their droppings or nesting materials. Sampling personnel will wear protective gloves; eye protection and an approved respirator when handling small mammals, if not in Level C PPE (e.g., while performing necropsies off-site). All mammals potentially carrying hantavirus should be wetted with a chlorine and water solution and allowed to remain wet for at least 15 minutes prior to being handled.
- **Large Mammals.** Attacks on field personnel by bears, wolves, and mountain lions could occur. At least one member of the field crew will carry bear mace and be instructed on how to use it. A walking stick may be used to fight off an aggressive animal. No one will work alone and all field personnel shall make noise to scare animals, if necessary.
- **Poisonous Plants.** Poisonous plants (e.g., poison oak and poison ivy) may cause dermal (skin) rashes in susceptible individuals. Precautions, including the use of barrier creams, should be taken to protect the skin from contact with plant oils. In addition, personnel should wash exposed skin areas as soon as possible after contact.

4.6 Sample Specific Potential Hazards

4.6.1 Collection of Small Mammals

Small mammals will be collected using appropriate methods specified in the SAP (EPA 2008). Small rodents such as mice may be infected with a type of hantavirus that causes Hantavirus Pulmonary Syndrome (HPS) and that may be transmitted to humans. Rodents shed the virus in their urine, droppings, and saliva. Humans are at risk of contracting HPS if they inhale saliva or excreta, as dried particles, from infected animals. The virus may be transmitted directly into broken skin, through the eyes, or, possibly, via the ingestion of contaminated food or water. The virus also may be directly transmitted through the bite of an infected animal. Precautions will be taken when removing dead rodents from traps, handling rodent excreta, rodent nests, and traps. Personnel performing rodent trapping and specimen collection will be made aware of the risks associated with these tasks and precautions to minimize these risks.

Other potential hazards include bruising or injury from bites from live animals. Protective clothing, gloves, and respirators will be worn at all times during the collection, handling, and processing of small mammals, if not in Level C PPE (e.g., while performing necropsies off-site). Traps, bags, and other collection vessels will be disinfected.

Precautions to be used when handling small mammals include:

- Field team members will work in pairs.
- Wear disposable rubber or latex gloves when handling traps, rodent carcasses or traps containing rodents, rodent nests, or rodent nesting materials. Gloves also

will be worn when handling soiled clothing. Heavy-duty gloves (Kevlar®-reinforced) will be worn when handling live mammals.

- Spray dead rodents, nests and nesting materials, traps, and gloves with a 10% solution of household bleach. Soak thoroughly. Wait 10-20 minutes before placing the material in a plastic bag and seal. Place the bag inside another plastic bag and seal.
- Wear long-sleeved shirts, long pants, socks, and shoes to prevent the potential transmission of the virus through open cuts. Tyvek® coveralls may be used to provide an additional measure of protection. Clothing should be laundered daily.
- Wear an appropriate respirator during all operations involving the collection, handling, and processing of rodents and rodent nests and nesting materials. The full-face PAPR with HEPA P100 filter cartridges will be appropriate protection for the hantavirus when on-site. For protection from the hantavirus off-site, a PAPR with N-100 cartridges or equivalent half-face respirators will be worn. Masks will be replaced after each break, at each trapping station, or anytime the mask is removed. Additionally, if breathing becomes difficult, the mask will be replaced.
- Bags containing rodents, nests or nesting materials, or traps should be transported in the bed of a pickup truck, if available. If a pickup truck is not available, animals should be transported in the trunk of the vehicle used for transportation to the field site.

4.6.2 Collection of Birds

If collection of birds is required, they will be collected using appropriate methods as specified in the EPA SAP. Some birds may be infected with the avian influenza virus. Although the risk to field personnel is minimal since the virus does not transmit easily to humans, common sense precautions will be used when processing or handling birds (detailed below).

Other potential hazards include bruising or injury from bites from live animals. Protective clothing, gloves, and respirators will be worn at all times during the collection, handling, and processing of birds, if not in Level C PPE (e.g., while performing necropsies off-site). Traps, bags, and other collection vessels will be disinfected.

Precautions when processing or handling birds include:

- Field team members will work in pairs.
- Wear disposable rubber or latex gloves when handling traps, bird carcasses or traps containing birds, bird nests, or bird nesting materials. Gloves also will be worn when handling soiled clothing.
- Spray dead birds, nests and nesting materials, traps, and gloves with a 10% solution of household bleach or a 70% solution of isopropyl alcohol. Soak thoroughly. Wait 10-20 minutes before placing the material in a plastic bag and seal. Place the bag inside another plastic bag and seal.
- Wear an appropriate respirator during all operations involving the collection, handling, and processing of birds and bird nests and nesting materials. The full-face PAPR with HEPA P100 filter cartridges will be appropriate protection for avian influenza when on-site. For protection from avian influenza while working off-site, an N95 respirator with an exhalation valve will be worn. Masks will be

replaced after each break, at each trapping station, or anytime the mask is removed. Additionally, if breathing becomes difficult, the mask will be replaced.

- Bags containing birds, nests or nesting materials, or mist nets should be transported in the bed of a pickup truck, if available. If a pickup truck is not available, animals should be transported in the trunk of the vehicle used for transportation to the field site.

4.6.3 Collection of Fish and Aquatic Invertebrates

Fish and aquatic invertebrates will be collected using appropriate methods as specified in the SAP (EPA 2008).

- Field team members will work in groups of four for fish collection and in pairs for aquatic invertebrate collection.
- While electroshocking for fish, rubber gloves and neoprene chest waders (or neoprene hip waders) will be worn in addition to Level C PPE (Section 4.2).
- Instream woody debris may present a tripping risk and pose a hazard during the collection of invertebrates or fish. Field sampling personnel should exercise caution.
- Soft sediments (mud) may be deep and extremely sticky, and may pose a hazard during the collection of invertebrates or fish. Field sampling personnel should exercise caution.
- Rocks may be slippery due to algae and moss growth. Sampling personnel should exercise caution when sampling directly in creeks and streams.
- It is presently not expected that boats or small watercraft will be required to collect samples; however, if these are required, life jackets or other approved personal flotation devices will be worn at all times, and all Golder health and safety requirements pertaining to the use and operation of boats and other small watercraft will apply.

4.6.4 Collection of Sediment or Water

Sediment samples will be collected as specified in the SAP (EPA 2008).

- Field team members will always work in pairs.
- Level C PPE (see Section 4.2) will be worn while sampling. Chest waders (or hip waders) are recommended for in-water sampling.

5.0 INSPECTION AND DECONTAMINATION PROCEDURES

5.1 Inspection of Respirators

All respirators will be inspected daily before use. Respirators will be cleaned daily, allowed to dry, and stored in a clean plastic bag. HEPA P100 cartridges will be changed twice daily. All cartridges will be disposed of as potentially asbestos containing waste. Offsite field necropsy personnel will wear multi-contaminant + P-100 cartridges and these will be changed mid-day each necropsy day.

5.2 Decontamination Procedures

Before reentering the vehicle from the mine site, workers wearing Level C PPE will spray their outer garment with hair spray to reduce airborne fibers and carefully remove the outer Tyvek® suit (i.e., turning it inside out keeping the "dirty" side to the inside). The outer gloves will then be removed in the same fashion (inside out), and the PPE removed at that location shall be left onsite in disposal containers to avoid bringing contaminants into the vehicle. Boots will be washed down.

While wearing Level C PPE with one pair of gloves and one Tyvek® suit, they will have the vehicle decontaminated externally with water on-site by the Mill Pond at the vehicle decontamination pad. Once the vehicle has been washed down, it will be driven on the paved road down to the site entrance/exit. Then it will be driven to the flyway area across Highway 37 from the site to conduct personnel decontamination. Once at the flyway area, the vehicle will be rinsed with clean water on the exterior. This water will be captured for return to the mine site.

Workers will exit the vehicle and enter the personnel decontamination trailer. They will remove the booties or boots, roll down their Tyvek® suit inside out, remove their respirator, remove their inner gloves and wash their face and hands (or shower). It is recommended that personnel shower and wash their hair. Then workers can change into clean street clothes to leave the site. All used PPE will be properly containerized for disposal.

If leather gloves or rubber gloves are used on-site, they must remain on-site. All clothes under Level C PPE should be dedicated to the project including gloves, hats, and long-sleeved shirts.

Necropsy personnel will remove and properly dispose of Tyveks® and PPE cartridges in the approved offsite location. Both should be replaced mid-day every day that work is ongoing in the laboratory.

6.0 EMERGENCY ACTION PLAN

6.1 Emergency Routes

The nearest hospital with emergency services to the Libby Asbestos Superfund Site is St. John's Lutheran Hospital. The location of and route to St. John's Lutheran Hospital is shown on the map in Figure 3.

Facility: **St. John's Lutheran Hospital**
Address: 350 Louisiana Avenue
Libby, Montana 59923
Phone: (406) 293-0100

6.2 Medical Emergencies

Medical emergencies can be described as situations that present a significant threat to the health of individual personnel. These can result from a variety of hazardous incidents including chemical and radioactive exposures, heat stress, cold stress, poisonous insect or snakebites, and accidents involving vehicles or heavy equipment. In the event of a medical emergency, implement the following guidelines:

1. Assure that the environment is safe.
2. Administer appropriate emergency first aid to all injured individuals, only if it is safe to do so, and only by a qualified individual trained in first aid.
3. Notify emergency personnel and follow their instructions.
4. If emergency personnel cannot be contacted, severely injured personnel shall be transported to the designated hospital or trauma center (see Section 6.1 above).
5. Contact WorkCare at the earliest possible time to report the work-related injury: (888) 449-7787.
6. If the project locations is outside of the United States and medical assistance is necessary, contact the HTH Assistance Center at 1-888-243-2358 or collect at 1-610-254-8769.

6.3 Rescue, First Aid and Medical Duties

In the event of an emergency, the Site Manager, Field Safety Officer and/or Field Team Leader is responsible for establishing and coordinating procedures to evacuate all on-site personnel, including non-Golder personnel.

Field team members will provide first aid and/or CPR, as needed, within the limits of their training.

The following equipment will be available on-site:

- First-aid kit
- Mobile (or satellite) telephone

First Aid Resources

Method of Communication	Radio: Grace-assigned personnel (to Golder) carry radios
Channel or Phone Number	Radio Channel TBD. Grace-assigned personnel (to Golder) carry radios
Location of First Aid at the Project Site	Small Kits in Ranger Vehicles and with Field Team Leader.
Location of Nearest Telephone if Outside Assistance is Required	Guard Station at Mine Site Entrance

6.4 Catastrophic Event or Other Emergencies Requiring Evacuation

In the event of a catastrophic event such as fire or explosion, if the situation can be readily controlled with the available resources without jeopardizing your health and safety or the health and safety of others, take immediate action to do so, otherwise, follow these steps:

1. Notify Emergency Personnel by calling 911
2. Isolate the fire to prevent spread
3. Evacuate the area
4. Assemble at the Muster Station: On-site Vehicle Decontamination Station
5. Perform head count to ensure complete evacuation
6. Inform Emergency Personnel of any missing team members
7. In the event of an international security emergency, contact Medex at 1-800-527-0218 (USA, Canada), or 410-453-6330 (collect outside of the USA)

6.5 Reporting Emergencies

Emergencies, including fires, will be reported to the local authorities by the Site Health and Safety Officer, the Field Team Leader, or the Site Manager. A listing of emergency contact numbers is provided in Table 1.

6.6 Reporting Accidents

Accidents and incidents, including near misses and minor injuries, involving Golder employees will be investigated and documented. The Project Manager or designee who is familiar with the incident will complete the Incident Report Form (Appendix A) and return it to the Health and Safety Coordinator (HSC) and the Human Resources Department in Redmond, WA. The report will be reviewed by the HSC, Project Manager and Project Director. A copy of the report shall be maintained in the project file, and a copy shall be provided to the Remedium Group, Inc. representative, the EPA representative, and the lead H&S Officer.

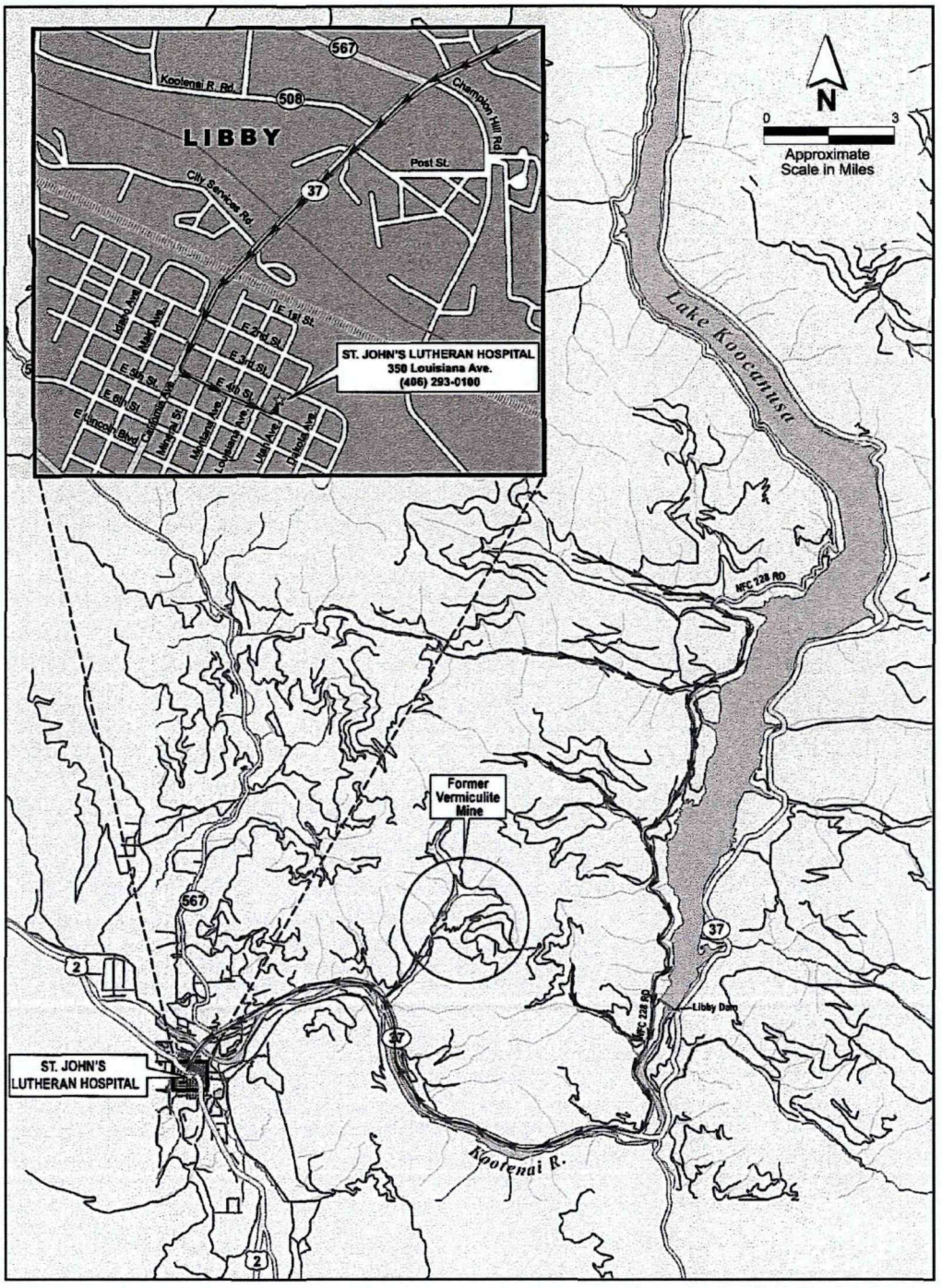


Figure 3. Map to Hospital

Table 1. List of Emergency Contacts and Services

	Telephone	Name/Contact
Site Telephone	Not applicable	
Ambulance	911	
Hospitals	(406) 293-0100	St. John's Lutheran Hospital
Rocky Mountain Poison & Drug Center	1-800-222-1222	
Police Department	911	
Fire Department	911	
Emergency Services	911	
Golder National H&S Leader	206-295-7002	Jane Mills
Project Manager/Field Study Director	(425) 894-2145	Sue Robinson
Client Contact	(901) 820-2023 (office) (901) 277-9031 (mobile)	Robert Marriam
Site Safety Leader	(802) 578-6511	Jeremy Clark
First Aid/CPR	(802) 578-6511 (425) 894-2145	Jeremy Clark Sue Robinson
Redmond Health & Safety Coordinator	(425) 417-2218	Amanda Cote
Injury Intervention Program	(888) 449-7787	WorkCare

7.0 OTHER REQUIREMENTS

7.1 Site Access

Access to the site is controlled by U.S. EPA. Field team members must contact Courtney Zamora (406-293-8595, ext. 241) at the CDM offices and check in on a daily basis. At their discretion, CDM personnel may accompany field team members during field sampling efforts.

7.2 Health and Safety Procedures Not Applicable to the Libby Site

Because of the type of field sampling to be performed at this site, a number of typical HASP features are not required. These are briefly summarized below:

- No medical surveillance is required for working at this site. If individuals are trained in accordance with Section 3 of this HASP, those individuals will have current medical clearance to undertake hazardous waste activities and to wear respiratory protection per 29 CFR 1910.120(f).
- No confined space entry is required at this site.
- No dust or air monitoring is required, since all field personnel will be wearing appropriate PPE (see Section 4.2) at all times while at OU3.

7.3 Working Alone: Regular Project Check-In Procedures

Golder does not permit remote field work to be conducted by a single individual for obvious health and safety reasons. If for some reason you are in the field alone or are the only Golder person on-site, you must check in with the Project Manager or a designee a minimum of twice a day, preferably once mid-morning and once mid-afternoon. Document each check in with the PM, and the time of the check in, in the field notebook to maintain a record. If check-in does not occur at the pre-scheduled time, the PM will follow these steps:

1. Call field personnel cell phone or satellite phone to make contact.
2. Call ell phone or satellite phone of other colleagues on the project site.
3. Call client contact if present on the site.
4. Call field personnel hotel or home telephone number.
5. Call emergency search services.

8.0 REFERENCES

EPA (U.S. Environmental Protection Agency). 2008. Phase II Sampling and Analysis Plan for Operable Unit (OU3), Libby Asbestos Superfund Site, Part C: Ecological Data. Prepared by EPA with Technical Assistance from Syracuse Research Corporation and NewFields Boulder, LLC, Denver, Colorado.

Appendix A: Forms

SIGNED ACKNOWLEDGMENT FORM

As a component of the Health and Safety Plan (HASP) designed to ensure personnel safety during project activities, you are required to read and understand the HASP before commencing any work. When you have fulfilled this requirement, please sign and date this personal acknowledgment form.

I have been provided with a copy of the HASP for this field project and have become familiar with it. I understand the Emergency response actions, contact numbers and locations of emergency facilities outlined in Section B6.

I will complete my tasks in a manner conforming to the HASP, Golder Standard Work Procedures (SWPs), and specific additional guidance provided during pre-job briefings, and will inform the Health and Safety Coordinator or Project Director of any conditions affecting site safety.

Printed Name	Signature	Date

FIELD SAFETY PROCEDURES CHANGE AUTHORIZATION

This Safety Procedures Change Authorization Form will be completed and signed before any safety procedures identified in this Site Safety Plan can be modified by the Field Team. All revisions to safety procedures must be approved by the Project Manager.

Change Number:

Date:

Duration of Task to be changed:

Description of Procedures modification: _____

_____

_____

_____

Justification: _____

_____

_____

_____

Person Requesting Change:	***Verbal Authorization Received From:***
_____	_____
Name:	Name:
_____	_____
Title:	Title:
_____	_____
Signature	Approved by:
	(Signature of person named above to be obtained within 48 hours of verbal authorization)

INCIDENT REPORT FORM

This report is to be completed by someone familiar with the incident. It should be completed and returned to the Health and Safety Officer whenever an incident occurs. If in doubt, fill it out.

Incident: any expected or unexpected happening that interrupts the work sequence or process and that may result in injury, illness, or property damage to the extent that it causes loss.

Project Title/Number: _____

Completed by: _____

Date of Incident: _____ Date of Report: _____

PERSONNEL INVOLVED
List of all personnel involved in the incident:

_____
_____
_____
_____

TYPE OF INCIDENT
Describe the incident:

_____
_____
_____
_____

INJURIES
List injured personnel and the injuries:

_____
_____
_____
_____

PREVAILING CONDITIONS
Describe the prevailing weather, surface, equipment conditions which may have had a factor in the incident:

_____
_____
_____
_____

PERSONNEL PROTECTIVE EQUIPMENT
List PPE used prior to and during the incident:

_____
_____
_____

_____

SITE MONITORING
Describe any real time monitoring that took place prior to, during and/or after the incident:

_____
_____
_____
_____

ACTIONS

List personnel and outside agencies that responded:

_____
_____
_____
_____

NOTIFICATIONS

Were the following notified? Police☐ Fire☐ EMS☐ OSHA ☐ Other ☐

RECOMMENDATIONS

List recommendations to avoid/correct the incident:

_____
_____
_____
_____

COMMENTS

_____
_____
_____
_____

REVIEWED BY:

_____ Site Health and Safety Coordinator

_____ Project Manager

_____ Project Director

ON SITE SAFETY BRIEFING TRACKING FORM

Meeting Type- Site Orientation or Tailgate Talk	Meeting Attendee	Initials*	Date	Topics Discussed / Concerns Brought Forward

***Please ensure that all workers (including other contractors) attending the safety meeting, initial the column beside their name**